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Like Parent Like Child? The Role of Delayed Childrearing in Breaking the Link Between Parent's Offending and Their Children's Antisocial Behavior**

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Abstract

This paper investigates the impact of parents' history of violent offending, their age at first birth, and the interaction of the two on their adolescent children's violent behavior. We employ intergenerational longitudinal data from the Rochester Youth Development Study to estimate parental trajectories of offending from their early adolescence through early adulthood. We show that the particular shape of the parents' propensity of offending over time can interact with their age at first birth to protect their children from delinquency. We investigate these relationships for children at 6 and 10 years of age. We find that for some groups delaying childrearing can insulate children from their parents' offending.

Keywords

Intergenerational Delinquency; Risk and Protective Factors; Developmental Stages; Trajectory Analysis

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Understanding the origins of antisocial behavior is obviously a crucial step for creating effective programs to prevent it. For example, knowledge of the developmental processes that lead to the onset and continuation of antisocial behavior yields information about the specific risk and protective factors that should be targeted by intervention programs. Consistent with this objective, scientific literature has identified risk and protective factors in childhood and adolescence that are proximate to offending (e.g., Hawkins, Catalano, & Miller, 1992) and violence (e.g, Esbensen, Peterson, Taylor & Freng, 2010), such as those in the family, school, and peer domains. Somewhat less attention, however, has been paid to the identification of risk and protective factors that are more distal from the time of the

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child's antisocial behavior, for example, early parental behaviors and characteristics. Distal factors may be the catalysts that initiate the more proximal developmental processes between the parent's behavior and that of the child. These distal factors can be seen as providing either risk or protection for the child's later antisocial behavior. So, distal factors may be particularly important targets for intervention well before children exhibit any antisocial behavior. If these distal parental factors are, in fact, related to more proximal developmental processes that also lead to children's antisocial behavior and its prevention, then effectively changing them may have many long-term benefits.

The purpose of this article is to add to the small literature that investigates distal factors for antisocial behavior. We do so by examining the impact and interplay of two early parental risk and protective factors for their child's antisocial behavior. These factors are drawn from the parent's own adolescence and young adulthood, well before the child begins to manifest involvement in problem behaviors.

The first is the impact of a parent's own delinquent career on the likelihood that their children will also exhibit involvement in antisocial behavior. A growing literature indicates that parents who were delinquent as youth are apt to have children who also engage in delinquent behavior (Farrington, 2011; Robins, West, & Herjanic, 1975; Thornberry, Freeman-Gallant, Lizotte, Krohn, & Smith, 2003). In this study, parents' own delinquent behavior during adolescence is the primary risk factor of interest.

Second, we are interested in identifying what parents, who put their children at risk given their prior involvement in delinquent behavior, might have done right during that same time period to reduce the impact of that risk factor. That is, we seek to discover a distal factor in the parents' lives that protect their children in the face of the risk that parental involvement in adolescent delinquency created. The variable on which we have chosen to focus is the age that parents experienced their first birth.

Prior research has found that becoming a parent at a relatively young age has problematic effects on the parents' life course trajectory and, in turn, increases the probability of their children being involved in delinquent behavior (Grogger & Bronars, 1993; Jaffee, Caspie, Moffitt, Belsky, & Silva, 2001; Pogarsky, Thornberry, & Lizotte, 2006; Pogarsky, Lizotte, & Thornberry, 2003; Nagin, Pogarsky & Farrington, 1997; Tremblay et al., 2004). Therefore, parents who delay having children are less likely to have children who will be delinquent. The question we ask in this study, however, is different from that addressed in prior research. Here we ask: Among parents who put their children at elevated risk by having engaged in delinquent behavior during adolescence, does delaying the birth of their first child act as a protective factor, decreasing the impact of that risk? That is, we are interested in the interaction effect of parental delinquency and parent's age at first birth on the level of their children's engaging in antisocial behavior.

Intergenerational Continuity in Delinquency

Although there has been much work done on the intergenerational continuity of behaviors like alcohol use (Brody, Flor, Hollett-Wright, & McCoy, 1998; Sher, Gershuny, Peterson, & Raskin, 1997), relatively few studies have focused on whether parental delinquency is

related to the delinquency of their children. Robins et al. (1975) found that among a cohort of urban youth, a parent's delinquency was predictive of the child's delinquency. In fact, this study found almost no change in delinquency rates between the two generations. Further, the authors showed continuity not only of delinquency, but also of arrest rates. This study is consistent with others showing similar findings (e.g. Robins & Lewis, 1966; Farrington, 2011). Although these relationships are statistically significant and consistent in the literature, they are, by and large, relatively modest in size. Correlations are typically in the 0.2 to 0.3 range. Importantly, it should be noted that these studies focus on older children or adolescents and do not disaggregate analyses by age.

There may be a number of reasons why parental delinquent behavior would be related to delinquent behavior among children (Thornberry, 2005). Delinquent behavior is associated with precocious and disorderly transitions from adolescence to adulthood. For example, delinquency is associated with dropping out of high school, teen pregnancy and parenthood, poor employment, and unstable family formation (Hope, Wilder, & Watt, 2003; Hotz, Mullin, & Sanders, 1997; Mensch & Kandel, 1988; Miller-Johnson et al., 1999; Monk-Turner, 1989; Thornberry, Smith, & Howard, 1997; Xie, Cairns, & Cairns, 2001). It is also related to involvement in adult crime and substance use, intimate partner violence, and child maltreatment, as well as less effective parenting styles (Elliott, Huizinga, & Menard, 1989; Kandel, 1990; Laub, Nagin, & Sampson, 1998). Histories of delinquency are related to developmental processes that are often associated with the absence of more proximal factors that can protect children from antisocial behavior. The parent's history of adolescent delinquency, the focus of the current study, may well be a catalyst for other later influences on the child's behavior.

In two related studies Thornberry and coauthors (2003, 2009) explored some of the reasons for the association between parental and child behavior. In the first study (Thornberry et al., 2003), they found that the continuity is mediated by financial stress and parenting styles. This examination of how parenting behavior affects the intergenerational continuity was continued in Thornberry, Freeman-Gallant, and Lovegrove (2009). This second article also found consistent, but modest, evidence for intergenerational continuity mediated by a parent's depressive symptoms.

Previous studies have typically used lifetime prevalence or point estimates to measure the parents' involvement in crime. As a result, they essentially ask the relatively simple question: do the children of delinquents, as compared to non-delinquents, have higher rates of delinquency. In other words, this research assumes the parents' level of offending over time, or at some arbitrary point, predicts the child's delinquency.

While informative, this approach ignores the considerable heterogeneity that has been identified in criminal careers (Piquero et al., 2001). We conceptualize the parent's criminality as the history of a propensity for offending across adolescence and young adulthood. Being able to account for the shape of the offending, or more correctly the propensity to offend, captures this heterogeneity. It has been amply demonstrated that delinquent careers range from non-delinquents through occasional or minor delinquents, to serious or chronic delinquents (Bushway, Thornberry, & Krohn, 2003; Haviland & Nagin,

2005; Piquero, 2008). Failure to take this heterogeneity into account may mute the actual level of intergenerational continuity in offending as it is reasonable to hypothesize that the transfer of risk will be greater for more serious as opposed to more minor offenders (Thornberry, 2005). By combining all offenders into the general category of "delinquents," prior studies may underestimate the impact that more serious chronic offenders have on their children. The relationship between parents' and child's delinquency may be strongest for parents with the most severe histories of delinquency.

As we describe below, we account for the heterogeneity in delinquent careers by modeling propensity of offending using group-based trajectories of delinquent behavior. These trajectories do not simply measure the level of offending. Rather, they measure the shape of offending over time. In this case, trajectories are also useful because they indicate the latent propensity for offending.

Prior research has clearly demonstrated that there is a significant amount of continuity across generations in delinquent behavior. However, it is also evident that there is a considerable amount of discontinuity; that is, many children of parents who were delinquent as adolescents do not engage in delinquent behavior. What did the parents of non-delinquent children do right when they were young that serves to offset the effects of their participation in delinquency? One possibility is that in spite of the increased likelihood that adolescents who engage in delinquent behavior will become teenage parents (see below), those parents of non-delinquent children were able to delay the age of the birth of their first child, and by doing so protect their child from the risk of their own delinquent behavior. We explore this possibility in the next section.

The Age at First Birth as a Protective Factor

It is important to establish the rationale for focusing on age at first birth as the potential protective factor in this study. There are a number of potential factors that formerly delinquent parents could do to insulate their children from the problematic effects of past parental involvement in criminal behavior. For example, parents who are able to acquire the necessary educational background to provide an adequate financial family environment for children are less likely to have children involved in delinquent (Nagin, Pogarsky, and Farrington, 1997). Financial stability may lead to less stress, resulting in a lower probability of child abuse and other forms of dysfunctional parenting that in turn leads to a lower likelihood of delinquent behavior (McKenry, Kotch, and Browne, 1991). And, of course, parents may be more effective at raising their children if they have reached a certain maturity level in their own lives; with age comes wisdom.

From a life course perspective, the age at which a parent first has a child can be seen as being a key transition point in the people's lives. Early parenting can place a person on a trajectory that will lessen the chances of being able to acquire the necessary human and social capital so important for establishing financial stability and a lifestyle conducive to a stable family environment (Thornberry and Krohn 2001).

Pogarsky et al. (2006) account for this by identifying the importance of off-time transitions in the life cycle of individuals. To increase the chances of a successful transition from

adolescence to adulthood, people should wait until their education is completed and they have stable employment; that is they should experience this transition ‘on-time’ in a normative sense. Delaying the birth of the first child has been found to be related to increased educational attainment and to later financial advantage (Furstenberg, Levine, & Brooks-Gunn, 1990; Grogger & Bronars, 1993; Hotz et al., 1997; Pogarsky et al., 2006). In addition, delaying the age of first birth has also been found to be related to more stability in family formation (Astone, 1993; Butler, 1992; Grogger & Bronars, 1993; Hotz et al., 1997) and fewer changes in caregivers for their children (Capaldi & Patterson, 1991).

Delaying the age of first birth, perhaps because of the increased likelihood of obtaining an education, stable employment, and a more stable family environment, is in turn, related to individuals being more effective in their parenting. For example, individuals who are older compared to those who are younger when they have their first child are better at monitoring and meting out discipline on a consistent basis (Patterson, Reid, & Dishion, 1992; Leadbeater, Bishop, & Raver, 1996) and have better relations with their children (Butler, 1992).

It is not surprising then that several studies suggest that children born to mothers who delay having their first child until after their teenage years have a lower probability of becoming involved in delinquency and related problem behaviors (Grogger & Bronars, 1993; Jaffee et al., 2001; Pogarsky et al., 2003; 2006; Nagin et al., 1997; Tremblay et al., 2004). Interestingly, this body of research indicates that it is the mother’s age at her first birth, not necessarily her age at the birth of the focal child that accounts for this relationship. Moreover, the relationship is strongest when teenage mothers are compared to women who delay the onset of childbearing until at least age 20. It appears that entering the often challenging role of parenthood prematurely, especially when that occurs before the typical age of leaving high school, is what creates the greatest risk for children. In other words, mothers who delay first childbirth have many of the parent and child characteristics that have been identified as the more proximal factors that insulate children from the onset and continuance of antisocial behavior. Given the key role that age of first birth plays in both the life cycle of the parent and the consequences for their children, this study focuses on its potential for protecting the child who is at risk for delinquency because of their parents’ involvement in such behaviors.

Delinquency and Age of First Birth

While both parental delinquency and delaying first birth are related to a child’s delinquency, the research has also shown that parents’ delinquency is predictive of the age that they have their first child. Typically, these studies use panel designs and most often follow female subjects. For example, Hope et al. (2003) find high rates of delinquency among adolescent girls who become pregnant, compared to girls who do not. Similarly, Miller-Johnson and coauthors (1999) show that girls who display stable patterns of aggression and delinquency in childhood and adolescence were at higher risk to have children as teenagers. They were also more likely to have children at younger ages than girls who displayed less aggression. A high level of aggression was shown to predict teen parenthood for both mothers and fathers (Xie et al., 2001). Finally, Thornberry et al. (1997) considered only teenage

fatherhood. Their analysis showed multiple measures of delinquency to be salient predictors of teen fatherhood, including delinquent peers, holding delinquent beliefs, drug use, gang membership, general offending, and violent offending.

Parents with prominent histories of antisocial behavior in their own adolescent and young adult lives tend to have children with antisocial behavior problems. In addition, parents who delay childrearing tend to have children who avoid these problems. We also expect that children with parents who have a prominent history of antisocial behavior but delay childrearing will fare no worse than children of parents without such histories of antisocial behavior. By comparison, children of parents who have a prominent history of antisocial behavior who do not delay childrearing will fare worse than children of parents without histories of antisocial behavior. In other words, there is an interaction representing a protective effect of delaying childrearing in the face of a history of parental delinquency on children's antisocial behavior.

Trajectories as Latent Propensities for Offending

We opt not to use parental histories of antisocial behavior outright. Instead, we conceptualize parental antisocial characteristics as a latent propensity for offending that is dynamic, fluctuating over time. As such, it is important to know what shape or pattern the propensity shows over the parent's life course to know where on the path he or she is when the child is born. Simply knowing an instant level of offending may be insufficient to understand how the remainder of offending or propensity to offend influences the child during the developmental years.

This suggests an additional reason why parents with continuing high propensities for delinquency may benefit from delaying childrearing. If parents have children while continuing on highly delinquent paths, the children could fare worse than if they delayed childrearing until the delinquency had subsided. For example, Figure 1 shows three hypothetical paths of offending over time. Path 1 shows a group of people who start offending at a low level, become higher and then decline over the adolescent stage of the life course. Path 2 shows a group who starts high on offending and declines dramatically. A third path is shown that is constantly low on offending. Assume that Paths 1 and 2 have the same area under their curves. In other words, they have the same average amount of offending over time. If only the average level of offending over time predicts the child's delinquent outcome, both those on Paths 1 and 2 should have the same predicted effect on the outcome – children's delinquency. In addition, if these Paths only capture the level of offending, one would not expect to differentiate between the interaction with offending and the age at first birth because their average levels would be the same for both groups regardless of their obviously different shapes. Similarly, if we used a static measure of offending at the youngest age, one would expect the children of parents on Path 2 to fare worse than those on Path 1. If we evaluated Path 1 and 2 statically at point A on age we would expect similar outcomes for children of both Paths. If we evaluated statically at the middle ages (around point B on the X axis) we would expect Path 1 parents to have problem children but not those on Path 2. Furthermore, in no case would we predict an interaction

between age at first birth and these static measures of offending on the children's offending because we would not be aware of the dynamic shape of the curves.

However, if the shape of the path, or the propensity for offending for the groups (rather than the level of offending at any particular point) matters, one would expect children born to Path 1 at any age before point C to be hampered because their parents have high propensities for offending during the child's formative years. This would not be true for children born to Path 2 parents at point A because the parents' propensity for offending is low and declining during the formative years of the children. Now, consider some subjects in Path 1 that delay parenthood until point C. At those ages, there is less propensity for parental offending while the child is developing, and so one would expect the child to fare better than a child born at point A. So a delay in childbirth before point C would benefit their children but not the children of those on Path 2 (except at the very youngest ages if any substantial number had children at that time – before point A). It is worth noting that Path 1 offending after point C looks very similar to Path 2 offending after point A. Path 1 parents do not need to delay; Path 2 do. For Path 3, there is very little propensity of offending to speak of. In this case, there should be neither main effects of parent's offending nor interaction effects with age at first birth because there is no real propensity for offending anywhere on the trajectory when the child is born. So, given the dynamic information provided by the Paths we expect an interaction between Path 1 and age at first birth and not the other Paths.

The Present Study: What's New Here?

We explore the hypothesis that delaying childbearing acts as a protection against the risk engendered by having parents with high propensities for delinquent offending in adolescence. In particular, we contribute to the literature in the following ways:

First, we account for the heterogeneity of the parents' delinquent careers in examining the relationship between their earlier offending and the child's antisocial behavior. To our knowledge there are only two other studies that have done this.[1] We also use the developmental trajectory method to account for the heterogeneity of offending careers, but we do so with prospective self-report data collected from the sample members. Our central hypothesis is that the transfer of risk will be stronger for parents who exhibit more serious delinquent careers.

Second, we examine how the interaction of parental trajectory of delinquency and age at first birth impacts the child's delinquency. In doing so, we adopt a protective factor approach (Luthar, Cicchetti, & Becker, 2000; Luthar, Cushing, Merikangas, & Rounsaville, 1998). In particular, we are interested in seeing whether delaying the onset of parenthood offsets the risk that the parent's involvement in delinquency creates for their children. Our hypothesis is that it does. That is, higher levels of parental delinquency will increase the

[1]Van de Rakt, Nieuwbeerta, & Dirk de Graaf (2008) used official conviction data from the Dutch registry to identify five trajectory groups of offending. They then related group membership to the official delinquency of their children. In general, trajectory groups that are indicative of high-rate, chronic patterns of offending have the highest level of transfer of risk to the next generation for involvement in delinquency. Using data from the Cambridge Study in Delinquent Development, Besemer and Farrington (2012) find that fathers with chronic and sporadic conviction trajectories are more likely to have children with significantly more convictions than non-offending fathers.

likelihood of the child's delinquency in general, and this will be especially striking for young parents. In contrast, we hypothesize that if parents delay the onset of childbearing, then their children will be buffered from the impact of their adolescent delinquency and will not be at increased risk for involvement in antisocial behavior. We do this for children at age 6 and again at age 10 to determine if parental delinquency and delayed first birth are salient predictors at relatively young and somewhat older periods of childhood.[2]

Third, we test to see if the potential reason that age at first birth buffers parent delinquency's impact on the child's delinquency is due to more stable family processes. As discussed earlier, prior life course research has shown that women with later childrearing have higher educational attainment, avoid poverty, and are more likely to live with their partners, (Butler, 1992; Grogger & Bronars, 1993; Hotz et al., 1997) allowing them to raise their children with good parenting practices, less maltreatment, and better educational results (Furstenberg et al., 1990; Jaffee et al., 2001; Pogarsky et al., 2006). In other words, early first birth leads to disruptions and developmental challenges that produce poor child outcomes. So we check to see if higher parental education, avoiding welfare, better parenting skills, and the like, account for the impact of the interaction of the trajectory of parent delinquency and age at first birth on child's delinquency. We have hypothesized that a later age of first birth reduces the burden on the parent, and insulates the child from the effects of parental delinquency. Should we find this effect, the next step would be to examine the specific domains of a parent's life that are challenged by an early first birth and if the aggregation of those factors creates detriments that lead to antisocial behavior on the part of their children. For example, individuals with high propensities of offending who have children before that propensity has dissipated may have these parental and educational deficits. To test this notion, we will control for measures of these deficits. If age at first birth does interact with high trajectories of offending, controlling for deficit measures should mediate the main effects and interactive effects. In other words, measures of parental deficits should be correlated with the age at first birth and trajectory main effects as well as their interactions. Accounting for this correlation would mediate the interaction effect.

Methods

Data

Data for the current study are drawn from the Rochester Youth Development Study (RYDS), an ongoing longitudinal study investigating the causes and consequences of serious, violent, and chronic delinquency. To date, the RYDS has completed 14 interviews for a panel of juveniles from their early teenage years through to age 31. The study began in 1988, at which time 1,000 seventh and eighth grade students in the Rochester (New York)

[2]Typically, studies examining intergenerational continuity in delinquency do not disaggregate the child sample according to age (Robins & Lewis, 1966; Robins et al., 1975; Thornberry et al., 2003; Wolfgang, Figlio, & Sellin, 1972). Thornberry et al. (2009) offer an exception, drawing measures from three age categories for the child sample, but ultimately measure child delinquency in one age bracket[2] (8 to 9 years old). In this manner, our study is unique. We not only separate the sample by age, but also measure child delinquency at 6 years old and again at 10 years old. This allows us to extend the literature by directly examining the factors that either encourage or discourage delinquency at these two distinct stages in life. This age difference is important because children's activities at age 6 are somewhat insular and family related, while by age 10 they begin to experience social networks in a larger context. So, we might expect the intergenerational influence to be stronger when the child is older and subject to the pressure of the outside world.

Public School System and one of their parents or guardians were interviewed. The current study uses data from the first 12 waves of data collection, when respondents were between the ages of 14 to 23.

The original RYDS sample was stratified on two dimensions (gender and rate of offenders living in neighborhoods) to provide respondents who were at high risk for violence and serious delinquency. Males were oversampled (75% versus 25%) as they are more likely than females to engage in serious and violent offenses (Blumstein, Cohen, Roth, & Visher, 1986; Huizinga, Morse, & Elliott, 1992). Since our study is predominately male at the parent level, we have an opportunity to determine whether males differentially impact the lives of their children relative to females studied in past research and to those females in our sample. That is, most prior research on age at first birth uses the age of the mother rather than the father. One might argue that the age at first birth of the father is not as relevant as the age of the likely primary caretaker (the mother). As we will see, this is not the case. Students from areas of Rochester where many adult offenders live were also oversampled due to the assumption that adolescents who live in such areas are at greater risk for offending than those living in areas where proportionately fewer offenders live. High residential offender areas were identified by assigning each census tract in Rochester a resident arrest rate that reflected the proportion of the tract's total adult population arrested by the Rochester police in 1986. Students were sampled proportionate to the rate of offenders living in each tract. The highest one-third of resident arrest rate tracks were sampled with certainty.

The data used in the current study span two phases of data collection. Phase 1 of RYDS covered the subject's adolescent years between ages 14 and 18. During this time, we interviewed each subject (G2) nine times (or waves) and their parent or guardian (G1) eight times at six-month intervals, ending in the spring of 1992. After a two-year gap in data collection, Phase 2 began in 1994 and covered subjects' ages of 21 to 23 with annual interviews. The subject panel is 68% African American, 17% Hispanic, and 15% White. These proportions resemble what was expected given the population characteristics of the Rochester schools and the decision to oversample high-risk youth. Compared to other longitudinal studies, subject attrition in RYDS is quite low. From Wave 2 to 12, we experienced only 1% attrition per year. At Wave 12, 85% (846) of the initial 1,000 subjects were reinterviewed; parent interviews were completed for 83% of respondents.[3]

Data for the current study are also drawn from the Rochester Intergenerational Study (RIGS). RIGS is an on-going continuation of the RYDS that follows the children of the original G2 RYDS subjects. Beginning in 1999, we conducted yearly interviews with G2 subjects whose oldest biological child (G3) had reached the age of 2. Additional G3 subjects are continually added to the RIGS sample as they reach this age. Only the oldest child of G2 is included as a G3. Therefore, there is only one G3 per G2 subject, regardless of the total number of children G2 has. Along with the G2, we also interview an "other caregiver"

[3]Attrition between Waves 1 and 12 did not differ according to demographic characteristics. The distributions for age, gender, race/ethnicity, census tract, and involvement in antisocial behavior are nearly identical for the total panel and the Wave 12 respondents. In a formal test of differential attrition, Krohn and Thornberry (1999) compared those G2 subjects retained to those not retained at Wave 12 on multiple dimensions, including gender, social class, family structure, drug use, delinquency, property crime, and violent crime for the total panel and for each racial or ethnic group. None of the difference tests reached statistical significance ($p < .05$).

(OCG) to G3. This OCG is typically the other biological parent of G3, but in some cases can be a grandparent or other relative (such as a stepparent, aunt, or uncle). When G3 subjects reach the age of 8, we interview them as well as the G2 and the OCG. Interviews are not conducted with children younger than 8. In Year 1 of RIGS (1999) we had 371 G3 subjects ranging between 2 and 14 years of age. The current study uses RIGS data through Year 7 of data collection (2005). In Year 7, a total of 472 families participated with G3's ranging in age from 2 to 19.[4]

We limited the study to include only Age 6 and Age 10 G3 subjects because our outcome variables are measured at these two ages. There are 244 valid cases in the Age 6 sample and 245 valid cases in the Age 10 sample. It is important to make explicit that while the original RYDS panel is a cohort of subjects proximate to each other in age, this is not the case with the RIGS sample. It is therefore possible for subjects to appear in one age sample but not the other, for several reasons.[5] There are 140 subjects who are included at Age 6 but not at 10, and 141 subjects included at Age 10 but not at Age 6. Table 1 shows the means and standard deviations on the three outcome measures described below for the Age 6 and Age 10 G3 samples.

Measurement

Risk and protection—The current study operationalizes parental risk for child antisocial behavior using the parent's own delinquent career. We treat risk as an underlying trait or latent variable whereby individuals have propensities for offending that fluctuate over the life course.[6] Specifically, following our previous work in this area we measure risk for offending as the propensity to commit violence over Waves 1 to 11 in data collection from adolescence (age 14) to young adulthood (age 20). We have chosen to use violence rather than general delinquency for two reasons. First, violence is a category of delinquency encompassing the most severe offenses.[7] We believe that having a high propensity for violence is an indicator of this latent criminality we wish to capture. Second, these violence trajectories have been developed and shown to have desirable measurement properties and predictive capabilities with the risk and protection context in prior research (Bushway, Krohn, Lizotte, Phillips, & Schmidt, 2011; Krohn, Lizotte, Bushway, Schmidt, & Phillips, 2010). Trajectories build on the logic that the best predictor of future behavior is past behavior. Using developmental information from prior waves, trajectories have been shown to have more predictive power than the same criminal history information entered in a non-linked way (Haviland & Nagin, 2005).

[4]The study began with 1,000 G2 cases. By Wave 12 154 cases were lost to attrition leaving 846 cases. Of these, at Year 7 of RIGS there were 633 G3 children. Of these, 472 were eligible and participated while 161 were excluded from participation for a variety of reasons such as the child was adopted, a court order kept the child from contact with G2, or the parent or child refused to participate among other reasons. An additional 213 G2 cases don't have a child or a child of eligible age to participate.

[5]A subject could appear at Age 10 but not in Age 6 simply because he or she was older than 6 when the RIGS began. Alternatively, a subject could appear at Age 6, but not at Age 10 because he or she had not reached the age of 10 by Year 7. Finally, it is possible to lose a subject to attrition between ages 6 and 10. However, subject retention in the RIGS is above 98%. There are 104 G3 subjects included in both the Age 6 and 10 samples.

[6]We do not mean to imply that the term propensity refers to some stable underlying trait. The term propensity has come to refer to probability or likelihood of being in one trajectory group compared to another. We use this term consistently in our prior research.

[7]The violence items used in the trajectories include: assault with a weapon, assault, sexual assault, gang fighting and robbery.

In previous research (Krohn et al., 2010; Bushway et al., 2011), we created trajectories of violence prevalence for G2 subjects from Waves 1 to 11 (through young adulthood). This process resulted in five offending groups as shown in Figure 2; non-offenders (group 1), late-blooming offenders (group 2), desistors (group 3), decliners (group 4), and chronic offenders (group 5). We then estimated each person's posterior probability of belonging to each group, essentially creating a unique trajectory for each person. For example, someone might have a 20% probability of belong to group 1, and an 80% probability of belonging to group 2. Their unique trajectory is a weighted average reflecting 20% of the group 1 trajectory and 80% of group 2. This approach eliminates the concern that we are treating all members of the group as homogenous (Raudenbush, 2005). Below, we use each G2's probability of membership in each of the violence trajectory groups as indicators of their delinquent career (omitting the probability of membership in the non-offender group as the reference category).

As can be seen in the top two panels of Table 1, the posterior probabilities of membership in each of the trajectory groups is quite high for the G2 parents of 6- and 10-year-old G3s.[8] For example, the posterior probability of group membership for G2 parents of 6-year-old G3s ranges from .822 for group 1 to .729 for group 3. Similarly high probabilities are found for the G2 parents of the 10-year-olds. The table also reports rather small standard deviations about these means and ranges. So the trajectories do a good job of summarizing the history of violence for the G2 subjects.

Our focal protective factor for child antisocial behavior in the current study is the G2 parent's age at the birth of their first child. Age at first birth has been shown to be a salient factor in predicting delinquent behavior in prior work (Pogarsky et al., 2003). Pogarsky and coauthors (2003) used two separate measures for parent's age at a child's birth (with our G2 subject being the child and G1 being the parent).[9] The first was a categorical variable indicating the parent's age at the birth of their first child. The second was a continuous variable indicating the parent's age at the birth of the focal child, G2. Two variables were necessary because G2 was not necessarily the firstborn child of the G1 parent. In the current study two variables are not necessary. G2 is now the parent, and G3 is the child. Because G3 is by design and definition the firstborn child of G2, the age of G2 at the birth of the first child is the same as the age of G2 at the birth of the focal child, G3. Therefore in the current study, we use only a continuous variable indicating G2's age at the birth of G3. We created this measure by calculating the period of time between the birth dates of G2 and G3.

We believe that delaying childrearing will insulate the G3 children from antisocial behavior. By delaying the birth of their first child, parents establish stronger support systems in their own lives. These support systems in turn allow the parent to more effectively cope with the stresses of parenthood and provide better care for their child. This should be true of all parents. Therefore, we expect to see G2's age at first birth to have a promotive or main effect on G3's antisocial behavior.

[8]We report these probabilities for each case's highest probability of assignment to a group.

[9]RYDS did not collect information on the delinquency of G1. Therefore, it was not possible to use G1's delinquent career to predict G2's delinquency is this study. This fact also precludes us from conducting a study of delinquency across three generations in the current study.

In the analyses below, we also include several potential mediating factors individually in an effort to further explain the process by which parent risk translates into a child's antisocial behavior.[10] These eight variables represent a range of factors in the G2's life and they were collected from the G2 subjects. They were chosen because they reflect disruptions in parents' life course identified by prior research that can produce deleterious childhood outcomes.[11]

Finally, we created a summary measure of these potential mediating factors. To do so, we divided each of the variables at their mean. If a subject was *below* the mean on a risk factor or *above* the mean on a protective factor they were given a "1" on a new dichotomous measure for each of these factors, and "0" otherwise. Then, we counted the number of "1" scores to create the summary measure of risk and protection. Essentially, this summary measure is a count of the number of negative mediators avoided and positive mediators gained. This measure ranges from 0 to 6, with a mean of 2.13.

Outcomes—The RIGS study collects information from the externalizing scale of the Child Behavior Checklist (CBCL) (Achenbach, 1991; 1992). The CBCL contains subscales measuring aggressive, delinquent, and destructive behaviors. Collection begins when G3 subjects reach the age of 2, and answers to the CBCL are recorded from G2, OCG, and the child's teacher for school-aged children. In the present study, we base our measures on the answers given by the primary female caretaker of G3 (most often the biological mother). The primary female caretaker most often has the most contact with G3 and we believe is the most familiar with G3's behaviors.

Using the CBCL, we were able to create measures for G3's delinquency, aggression, and externalizing behavior.[12] In all three cases, higher scores indicate more of the problem behavior in question. The delinquency measure captures behaviors such as lying or cheating, running away from home, and stealing from the home. Aggression includes items such as arguing often, bullying or being cruel to others, and destroying their own things. The measure of externalizing behavior consists of behaviors such as getting into fights, physically attacking others, and spending time with others who get into trouble. We have each of these measures for both the Age 6 and Age 10 samples, yielding a total of six outcomes in the current study.[13]

[10]Summary statistics for these variables are shown in Table 1.

[11]Depressive symptoms is a measure capturing the number of psychological problems reported by G2, such as loneliness or suicidal thoughts. Stressful life events captures events such as the death of a close relative or serious financial problems. Welfare receipt is a dichotomous measure indicating if G2 received some form of public assistance. The mediators also include being enrolled in or having completed high school or a General Equivalency Degree (GED), partner status, and being employed the entire time from ages 19 to 21. Being enrolled in or having completed high school or a GED is a dichotomous measure indicating whether G2 was enrolled in high school or had received a high school diploma or GED at Wave 12. Partner status is a dichotomous measure indicating whether or not G2 had a romantic partner at Wave 12. The dichotomous employment variable indicates whether or not G2 was employed 100% of the time from ages 19 to 21. These variables were all coded in a way that allows them to be considered parental deficits.

[12]For these three scales, the CBCL includes items that specifically pertain to behaviors in school (e.g. disobedience at school or doing poorly in school). Because of this, we might expect to see a stronger effect in the Age 10 analyses, as these measures are more relevant for 10-year-olds than for 6-year-olds.

[13]There are well known measurement properties to these scales. When factor analyzed, the items load separately on these scales and are meant to be used in subscales and not as one omnibus measure. See Lizotte, Chard-Wierschem, Loeber, and Stern (1992) for some detail about our much earlier use of the Achenbach measures and their properties.

Analysis

To examine the impact of a parent's delinquent career and age at first birth on a child's antisocial behavior, we estimate an equation using G2's probability of membership in each violence trajectory group and G2's age at first birth to predict the outcome of interest for the Age 6 G3 sample. In this equation, we include a dummy variable for G3's gender as a control (leaving females as the reference group).[14]

$$\text{Outcome}_{6i}=\alpha_1+\alpha_2 T2_i+\alpha_3 T3_i+\alpha_4 T4_i+\alpha_5 T5_i+\alpha_6 G2\text{Age}_i+\alpha_7 G3\text{Male}_i+\varepsilon_i \quad (1)$$

Equation 1 illustrates how the Age 6 outcomes are predicted. In equation 1, Outcome_{6i} represents the particular Age 6 Achenbach outcomes (delinquency, aggression, and externalizing behavior), $T2_i$ through $T5_i$ represents each G3's parent's (G2) probability of membership in the violence trajectory groups 2 through 5 (group 1, the non-offenders, are omitted from equation 1 as the reference category),[15] $G2\text{Age}_i$ represents the age of the G2 parent when each G3 was born, and $G3\text{Male}_i$ is the dummy variable indicating that the G3 is a male. Equation 1 estimates the main effects of the violence trajectory groups and G2's age at first birth on G3's antisocial behavior outcomes. This equation tests for promotive effects of G2's age at firth birth on G3 outcomes.

However, we are also interested in how the impact of G2's age at first birth may depend on which violence trajectory group he or she belongs to. In other words, we hypothesize that there are interaction effects between the delinquency trajectory group variables and the G2 age at first birth variable. The age at first birth may be a more salient factor in predicting child outcomes for chronic delinquency or for very high delinquency parents that decline than for less habitual offenders.

To test these hypotheses, we estimate a model including interaction effects between G2's age at first birth and each of the violence trajectory groups. This fully saturated model is shown in equation 2. Equation 2 is similar to equation 1, with four additions. In equation 2, $T2_i$*$G2\text{Age}_i$ represents the interaction between G2's probability of membership in violence trajectory group 2 and G2's age at first birth, $T3_i$*$G2\text{Age}_i$ represents G2's probability of membership in violence trajectory group 3 and G2's age at first birth, and so on. The remainders of the variables are the same as those included in equation 1. As in equation 1, violence trajectory group 1 is omitted as the control.

$$\begin{aligned}\text{Outcome}_{6i}=&\alpha_1+\alpha_2 T2_i+\alpha_3 T3_i+\alpha_4 T4_i+\alpha_5 T5_i+\alpha_6 G2\text{Age}_i+\alpha_7 G3\text{Male}_i+\\&\beta_1 T2_i*G2\text{Age}_i+\beta_2 T3_i*G2\text{Age}_i+\beta_3 T4_i*G2\text{Age}_i+\beta_4 T5_i*G2\text{Age}_i+\varepsilon_i\end{aligned} \quad (2)$$

As will be seen in the results section below, violence trajectory groups 2 and 3 never show significant main effects in any equation tested for any outcome regardless of G3 age.

[14] We estimated equations controlling for G2 and G3 race and gender. These variables were not statistically significant in any equation.

[15] Recall that we use posterior probability of group membership. Cases essentially have some probability of membership in every group, however small. This means that the dominant group member carries the day and that lesser group memberships are controlled. The regression coefficient shows the comparison of individuals with high probabilities of membership in that group with those who have high probabilities of membership in the control group.

Additionally, groups 2 and 3 do not have significant zero-order correlations with any outcome (results not shown). Including interaction terms for violence trajectory groups 2 and 3 along with groups 4 and 5 introduces problems with multicollinearity and an unnecessary loss of degrees of freedom.

After centering and logging all variables to correct for this multicollinearity,[16] we estimate the full models shown in equation 2. Not surprisingly, the interaction terms for violence trajectory groups 2 and 3 are never significant. This finding is consistent with our hypothesis above that age at first birth is salient for high-level offenders but not for low-level delinquents. In the interest of space, we do not include the models. For the sake of parsimony and to avoid the undesirable statistical consequences detailed above, we then estimate a trimmed down model only including interaction terms for the two highest violence trajectory groups (4 and 5). Given that these two groups take very different trajectories after beginning at a relatively high rate of crime, we are particularly interested in whether the age at first birth operates differently for these two trajectories. This simplified model is shown in equation 3.

$$\text{Outcome}_{6i}=\alpha_1+\alpha_2 T2_i+\alpha_3 T3_i+\alpha_4 T4_i+\alpha_5 T5_i+\alpha_6 G2\text{Age}_i+\alpha_7 G3\text{Male}_i+\beta_1 T4_i*G2\text{Age}_i+\beta_2 T5_i*G2\text{Age}_i+\varepsilon_i \quad (3)$$

Having estimated the main effects and interaction effects of the trajectory groups and G2's age at first birth on antisocial behavior in the Age 6 sample, we then extend the analysis to the Age 10 sample. Accordingly, we estimate equations predicting G3 outcomes for the Age 10 sample using the same predictors as before.[17] Equation 4 is the same as equation 1, except that Outcome_{10i} represents the Age 10 Achenbach outcomes. Equation 5 replicates equation 4, except that it includes the interaction effects between G2's probability of membership in violence trajectory groups 4 and 5 and G2's age at first birth. The remainders of the predictors in equation 4 are identical to the predictors used in equation 3. For identical reasons to those discussed above, we do not include interaction terms for violence trajectory groups 2 and 3 in the Age 10 models. To avoid multicollinearity, all variables were centered and logged before estimating equations.[18]

$$\text{Outcome}_{10i}=\alpha_1+\alpha_2 T2_i+\alpha_3 T3_i+\alpha_4 T4_i+\alpha_5 T5_i+\alpha_6 G2\text{Age}_i+\alpha_7 G3\text{Male}_i+\varepsilon_i \quad (4)$$

$$\text{Outcome}_{10i}=\alpha_1+\alpha_2 T2_i+\alpha_3 T3_i+\alpha_4 T4_i+\alpha_5 T5_i+\alpha_6 G2\text{Age}_i+\alpha_7 G3\text{Male}_i+\beta_1 T4_i*G2\text{Age}_i+\beta_2 T5_i*G2\text{Age}_i+\varepsilon_i \quad (5)$$

[16] Even after this correction, variance inflation factors remain high but not dangerous, mostly close to 7.

[17] We note that all original models also include dummy variables for African American and Hispanic race (of the G2 parent). However, these dummy variables were not significant predictors of the outcomes, and made virtually no addition to the fit of the models. For parsimony, we excluded these predictors from the final models presented here. A dummy variable for G2gender was excluded for the same reason. The reader will recall that the majority of G2 subjects are male, whereas the G3 sample is evenly split among males and females. The G3 male gender dummy variable was therefore more useful in predicting antisocial outcomes than G2 gender.

[18] Here, multicollinearity was not problematic; variance inflations factors were below the commonly accepted threshold of 4.

Results

Table 2 shows Ordinary Least Squares equations predicting Achenbach measures of delinquency, aggression and externalizing behavior separately for G3 subjects at age 6. Exogenous variables include four trajectory variables indicating the probability of each subject belonging to trajectory groups 2, 3, 4 and 5. Group 1, the low level non-offenders, is the omitted reference group. Recall that groups 4 and 5 are the decliner and chronic groups respectively. The equations also include G2 age at first birth and gender (male). The equations do not fit the data very well. The F tests for the aggression and externalizing equations are not statistically significant and the R-squares are small. The only statistically significant finding is that high probability of membership in the decliner group (group 4) is related to higher levels of Achenbach delinquency compared to the non-offender reference group (group 1). However, the trajectory groups are unrelated to the other outcomes. Furthermore, age at first birth is unrelated to the three outcomes. As we suggested above, this may be a result of the items included in the outcome measures having less relevance for 6-year-olds than for 10-year-olds.

Table 3 includes separate interactions between trajectory groups 4 and 5 with G2 age at first birth for each of the three outcomes for 6-year-old G3 subjects. Once again, there are no statistically significant predictors of aggression and externalizing behavior. Achenbach delinquency continues to be predicted by the declining group and now by the interaction of the age at first birth and the declining group. In essence, G2s in group 4 who delay childrearing have children with lower delinquent behavior compared to those who have children earlier. So, there is an advantage to delaying childrearing that is evident in children as young as 6 years old. It is important to note that although both groups 4 and 5 began trajectories at relatively high rates, the age of first birth interacted only with group 4 and not group 5 suggesting that it is not simply the fact that these were high end offenders but rather the shape of their trajectory that mattered.

Table 4 shows the comparable equations for G3 subjects when they are 10 years old. Here the findings are much more robust. The G2s in groups 4 and 5 have main effects that always significantly predict the three G3 outcome measures. Parents with high probabilities of membership in these groups that are high on delinquency tend to have 10-year-old children who are also high on all three antisocial outcomes. In addition, G2 age at first birth has a statistically significant promotive effect on the G3 outcomes. The older the G2 at the birth of the first child, the less antisocial behavior the G3 exhibits. The F tests for the equations are all statistically significant and the R-squares are modest. Apparently, by age 10 the impact of parent's high delinquency is felt by the child and delaying first birth lessens that impact.

Table 5 shows the equations for 10-year-olds with the separate interactions for the decliners and chronic group (groups 4 and 5 respectively) probabilities and G2's age at first birth predicting the three outcomes.[19] The interaction terms for group 4 are not significant whereas all three interactions for G2s in group 5 are statistically significant predictors of the

[19]For the sake of completeness we also tested interactions between age at first birth and groups 2 and 3. Because we found no main effects for group 2 or group 3 on the outcomes, it is not surprising that we found no interactive effects either. In the interest of space, we do not include these results.

Achenbach outcomes for G3s. That is, G2's age at first birth operates as a protective factor for all G3 outcomes for group 5 but not for group 4. The main effects of group 5 are no longer statistically significant indicating that group 5's impact is really its interaction with G2's age at first birth. G2 age at first birth continues to show a main effect on G3 delinquency, aggression and externalizing behaviors. In other words, those who exhibit chronic delinquency over the adolescent/young adult life course tend to have children who exhibit problem behaviors that become manifest by age 10. However, if they delay childrearing to older ages the impact of their chronic behavior disappears and their children exhibit fewer problem behaviors than do others. Why might this be so?

As we discussed above, both chronic delinquency and early childbirth are associated with any number of precocious and disorderly transitions that could cascade to produce problem behavior in the next generation. To determine which of these factors may be responsible we enter a series of six mediating variables into the equations to see if we can account for the chronic delinquency/age at first birth impact on the children's problem behavior. These mediating variables include G2 measures of depressive symptoms, stressful life events, welfare receipt, high school completed/GED, partner status, and percent of the time employed between 19 and 21 years of age. These variables are also found in Table 1. Each of these mediating variables was entered into the Achenbach outcome equations separately to see if they could mediate the impact of the main effects of the chronic trajectory group (group 5) for 10-year-olds, the declining group (group 4) for 6-year-olds, as well as the main effects of G2 age at first birth and the interaction effects of trajectory and age at first birth.[20] If a particular variable could mediate these effects it would mean that that variable was responsible for the main effect of the trajectory group, the impact of age at first birth or the interaction of the two. However, none of these variables significantly impacted the results shown in Tables 3 and 5. So, for example, employment, welfare receipt, and finishing school were not responsible for the main effects of chronic offending (group 5), early first birth, or the interaction of the two on the three Achenbach outcomes.[21]

We also included a summary measure that accounts for the number of these mediating variables that conspire to impact the G2's life. This variable is simply a count of six negative and positive transitions that come to bear on the G2. The variable ranges from 0 to 6 with a mean of 2.13. When this summary variable is included in the equations we find no main effects of G2 chronic (group 5) or decliner (group 4) group affiliation with G3 outcomes. Table 6 shows the results from these analyses for the 10-year-olds.[22] With the exception of Achenbach externalizing behavior for 10-year-old G3s, we do not find effects of the interaction of trajectory group membership and G2 age at first birth on the G3 outcomes. This means that it is not the result of any one particular thing that goes wrong in parents' lives due to a chronic trajectory of offending (group 5) and an early age at first birth that produces troubling behavior in their children. Rather, it is suggestive that the accumulation of many things produces delinquency and aggression.[23] However, even after controlling for

[20]Multicollinearity precluded entering all these variables into equations together.
[21]We do not include these 72 equations to save space.
[22]In the interest of space, we do not include full results for 6 year olds, since for practical purposes there were no effects to be mediated.

the summary measure, the interaction of having a chronic trajectory (group 5) and G2's age at first birth does tend to reduce Achenbach externalizing behaviors in offspring. The summary measure does not mediate this effect as it does for delinquency and aggression. In these equations the main effects of G2 age at first birth always remain for 10-year-olds. So, a delayed first birth matters in avoiding problem behavior in children, independent of the mediators that we consider.

In light of these findings, we were intrigued by the question of whether there exists a "safe age" for parenthood, meaning an age at which the parental influence is no longer transmitted to the child's antisocial behavior.[24] To investigate this possibility, we first re-estimated the models using samples that progressively excluded subjects who became parents at older and older ages. In other words, our models above included all parents, the youngest of whom became parents at age 13. Then, we estimated the models including only parents who had their child at age 14 or older. Then, age 15 and older, and so on.[25] The goal here was to determine the point at which the age at first birth variable was no longer a significant predictor. For most models the age at first birth effect was insignificant after excluding 18-year-old (and younger) parents, although some models required the exclusion of 19-year-old parents. If this is the "safe age" of parenthood we could re-estimate the full models substituting a dichotomous variable indicating whether the parent was above or below this age[26] at the birth of the G3 child, and see the same results. This did not happen. The dichotomous indicator of parenthood age was not a significant predictor of child antisocial behavior as was the continuous measure.

We suspected this was the case because the effect of the age at first birth was contingent on the specific trajectory group of the G2 parent, given the interaction effects we previously found. To further explore this finding, we plotted the interquartile ranges of the age at first birth for each trajectory group. This plot appears as Figure 3. The usefulness of this comes from examining the amount of offending propensity that exists *after* the birth of the child. For example, looking at 25th percentiles for the trajectories, there are remarkably high remaining propensities for groups 4 and 5 (decliners and chronics) as compared to the three lower trajectory groups. In other words, three-quarters of G2 subjects in groups 4 and 5 continue to have high offense propensities as they have yet to have their first child for years to follow. This plot also shows quite well the offending propensity that exists during the formative years of the child's life. Finally, we believe that it illustrates why the dichotomous measure of age at first birth ineffectively predicts child antisocial behavior. The impact of age at first birth seems to float depending upon trajectory group membership.

Summary and Conclusions

Research clearly demonstrates that parental behavior can influence the behavior of children in a multitude of ways (Loeber, 1982; Pogarsky et al., 2003; Pogarsky et al., 2006). Most of

[23]The summary measure is statistically significant in predicting these outcomes when the interactions are omitted. So, the summary measure is significantly correlated with the main effects and interaction effects, and thus their covariability negates those effects when included in the model.
[24]We are indebted to an anonymous reviewer for raising this question.
[25]In the interest of space we do not include the full results from these models.
[26]We did this with ages 18 and 19 with identical results.

this research has been focused on the proximate behaviors of parents on their children at or just prior to the time that the child's behavior is being observed. In this paper, we have examined the impact of more distal behaviors of parents on their offspring's early childhood problematic behaviors. That is, we have examined how parental behavior primarily during their adolescence affects their children's behavior.

Specifically we have focused on how the trajectories of parental criminal behavior serve as risk factors for problematic behaviors among their children when the latter were 6 and 10 years old. We found that the influence of the criminal history of parents on their child's problematic behavior was more likely to manifest at age 10 than at age 6. The only significant effect found for 6-year-olds was between the parents' decliner trajectory group (group 4) and one of our three measures of problematic behavior among their children, the Achenbach delinquency scale. The parents' chronic group (group 5) was not related to any of the three measures for their children. The relative ineffectiveness of parental criminal history in accounting for their children's problematic behavior at this young age should not be surprising. Six-year-old children are to some extent restricted in their opportunities to manifest such behaviors, having somewhat limited interaction with others and little to no independence. Further, the CBCL measures are not completely relevant for all 6-year-olds, as some pertain to problem behaviors in school.

The results for 10-year-olds were more robust. Among this age group we found that both the decliner and chronic parental trajectory groups (groups 4 and 5 respectively) that exhibited relatively high rates of delinquent behavior, were significantly related to all three measures of their children's problematic behaviors. At 10, children's interactional networks are more extensive (given that they are all in school by this point), they are outside the home more often, and are more behaviorally independent than they were at age 6. It is therefore not surprising that if parental adolescent behavior has an effect on the behavior of their children, it would be more likely to be manifested at 10 than at 6.

The more important research question is whether among those parents who put their children at risk by having participated in delinquent behavior, are there some relatively distal behaviors that can offset the effects of parental delinquency? That is, can even those parents who are in the high delinquent trajectory groups behave in ways that serve to protect their children from problematic behavior? Specifically, the question posed was whether having children later rather than earlier would serve to offset the effects of high parental involvement in delinquency.

The results answer the question affirmatively for those 10-year-old children of parents who were in the most delinquent trajectory group, the chronic group (group 5). The age of first birth is a protective factor for all three measures of problematic behavior for our 10-year-olds. Moreover, the impact of having parents who are in the group 5 is no longer significant once the interaction between age of first birth and group 5 membership is entered into the equation. It is important to note that this was not the case for the declining group (group 4). Their main effects of group membership on problematic behaviors were reduced to insignificance for two of the three outcomes when the interaction terms were entered into the equations. However, the interaction terms measuring the protective efficacy of delaying

childbirth were not statistically significant. So, there is no protective effect of delaying childbirth. Although both group 4 and group 5 were similarly high in their offending patterns initially, the trajectory for group 4 sloped down while group 5 remained relatively high. In contrast, for group 4 (but not group 5) we found some evidence of a supportive effect for the protective role of age of first birth for the 6 year olds. The only significant impact of parental delinquency on the child's problematic behavior was for the relationship between having parents in group 4 and the Achenbach delinquency scale. The interaction between age of first birth and parental membership in group 4 was significant as well, indicating that delaying having children protects children of relatively high risk parents even at the age of 6. The differences between 6- and 10-years-olds pose interesting questions about how mediators and protective factors might operate at different ages but we leave this for future research.

Our attempt to determine what might explain the protective effect of delaying childbirth was only partially successful. We examined the impact of six parental factors chosen because they have been suggested as being related to both early childbirth and to behavioral problems among their children. They represented both emotional factors such as depressive symptoms or experiencing stressful life events and more objective indicators of disadvantage such as being on welfare, not completing high school, being a single parent and unemployment. None of these factors successfully mediates the main effects or the significant interaction effects. However, when we combined these six factors into a summary index it did successfully mediate the main effects of trajectory group membership for both the decliners (group 4) and chronics (group 5). The summary index also mediated the interaction effects for group 5 on the G3 delinquency and aggression outcomes. This suggests that it is the accumulation of emotional and economic parental deficits that explain why delaying first birth serves as a protective factor for problematic behaviors among their children.

The impact of the accumulation of deficits, rather than any one in particular, is consistent with findings regarding risk and protective factors generally. Research has typically shown that the accumulation of both risk and protective factors is much more important than any one factor in particular. For example, Smith, Lizotte, Thornberry, and Krohn (1995) and Thornberry et al. (2003) both show that after the accumulation of two or more risk factors the impact on problematic outcomes is particularly important.

The search for potential explanations of the protective effect of the age of first birth points to a limitation of this study. There are a number of other factors that might explain the effect of age at first birth. Research has found that parents who have children earlier rather than later may be more likely to be dysfunctional parents (McKenry et al., 1991). In addition, marital relations often are strained by early first birth (Moore & Waite, 1981). Of course both parenting and marital relationships have been linked to behavioral problems among children (Davies & Cummings, 1994; Kandel, 1990).

Alternatively, the protective effect of the age of first birth may be spurious. Those who delay having children may have more self-control than those who have children earlier in the life course. The propensity for low self-control may be transmitted either genetically or

behaviorally (through parenting) to children resulting in the observed problematic behavior. We chose to focus on what we consider to be emotional and economic deficits that have been shown to be related to both the age of first birth and problematic child behaviors.

Another limitation of this research might be that for absent G2 fathers the moderating variables that indicate disruptions in the G2 life course may not be so salient for their children's antisocial behavior because they have less contact with their children. However, for the declining and chronic groups' long term trajectories of offending, age at first birth and the interaction of the two certainly predict high levels of antisocial behavior for their children and the mediators by and large eliminate these relationships. So, these relationships might be even stronger for a sample of fathers who are present. After all, for the most violent fathers absence from the child's life might be a good thing.

Our findings have important theoretical and practical implications. Theoretically, the findings suggest the importance of recognizing that more distal parental factors can have an effect, both positively and negatively, on the behavior of the next generation. Developmental theories focusing on the impact of parents on child behavior are increasingly recognizing the need to take into the account the development of not only the child and the immediate impact of the parent, but also the impact of the development of the parent. Of course, datasets that have developmental information on more than one generation are only now beginning to be analyzed. We anticipate that work on developmental and life course theories coupled with the collection of appropriate data sets will lead to exciting developments in this area.

More specifically, our research has underscored the importance of the age of first birth as being integral in understanding why some children whose parents place them at risk for problematic behavior are not likely to be involved. The theoretical challenge and empirical challenge will be the specific factors that might explain why delaying childbirth will serve to protect the next generation from deviant behavior.

Two additional insights were gained from our analysis. First, the main effects and interaction effects were different for children aged 6 and aged 10. This may have been an artifact of the items included in the Achenbach scale being more appropriate for the older children or it could simply be a result of the relatively low variability in the dependent variable for the younger children. The second additional insight concerned the use of trajectories as compared with simply taking into account the average level of crime. Had we used the latter we would not have observed the differences in the interactive effect of age at first birth between the decliner (group 4) and the chronic (group 5) groups.

The applied implications of our findings are straightforward. Importantly, our findings suggest that youth with troubled pasts can do right by the next generation: that is, even if some aspects of their lives are problematic, other decisions they make may serve to insulate their children from experiencing similar outcomes. Moreover, the findings suggest another avenue of intervention for delinquency prevention. The deleterious effects of teenage pregnancy have long been noted and there have been many programs targeting it. Until recently these programs have been thought to be successful. From 1990 through 2005,

teenage pregnancy had been going down (Ventura, Abma, Mosher, & Henshaw, 2006). In recent years there is concern that the trend may have been reversed. Renewed efforts to once again reduce the rate of teenage pregnancy will not only benefit the parent and the child in many different ways, but based on these findings, protect children from the effects of having a parent who was heavily involved in delinquent behavior.

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References

Achenbach, TM. Manual for the child behavior checklist/4–18 and 1991 profile. Burlington, VT: University of Vermont; 1991.

Achenbach, TM. Manual for the child behavior checklist/2–3 and 1992 profile. Burlington, VT: University of Vermont; 1992.

Astone NM. Are adolescent mothers just single mothers? Journal of Research on Adolescence. 1993; 3(4):353–371.

Besemer S, Farrington DP. Intergenerational transmission of criminal behavior: Conviction trajectories of fathers and their children. European Journal of Criminology. 2012 in press.

Blumstein, A.; Cohen, J.; Roth, JA.; Visher, CA., editors. Criminal careers and “career criminals”. Vol. 1. Washington, DC: National Academy Press; 1986.

Brody GH, Flor DL, Hollett-Wright N, McCoy JK. Children’s development of alcohol use norms: Contributions of parent and sibling norms, children’s temperaments, and parent-child discussions. Journal of Family Psychology. 1998; 12(2):209–219.

Bushway SD, Krohn MD, Lizotte AJ, Phillips MD, Schmidt NM. Are risky youth less protectable as they age? The dynamics of protection during adolescence and young adulthood. Justice Quarterly. 2011

Bushway SD, Thornberry TP, Krohn MD. Desistance as a developmental process: A comparison of static and dynamic approaches. Journal of Quantitative Criminology. 2003; 19(2):129–153.

Butler, JP. Of kindred minds: The ties that bind. In: Orlandi, MA.; Weston, R.; Epstein, LG., editors. Cultural competence for evaluators: A guide for alcohol and other drug abuse prevention practitioners working with ethnic/racial communities. Washington, D.C: DHHS/OSAP; 1992. p. 23-54.

Capaldi DM, Patterson GR. Relation of parental transitions to boys’ adjustment problems. Developmental Psychology. 1991; 27(3):489–504.

Davies PT, Cummings EM. Marital conflict and child adjustment: An emotional security hypothesis. Psychological Bulletin. 1994; 116(3):387–411. [PubMed: 7809306]

Elliott, DS.; Huizinga, D.; Menard, S. Multiple problem youth: Delinquency, substance use, and mental health problems. New York, NY: Springer-Verlag; 1989.

Esbensen, F-A.; Peterson, D.; Taylor, TJ.; Freng, A. Youth violence: Sex and race differences in offending, victimization, and gang membership. Philadelphia, PA: Temple University Press; 2010.

Farrington, DP. Families and crime. In: Wilson, JQ.; Petersilia, J., editors. Crime and public policy. New York, NY: Oxford University Press; 2011. p. 130-157.

Furstenberg FF, Levine JA, Brooks-Gunn J. The children of teenage mothers: Patterns of early childbearing in two generations. Family Planning Perspectives. 1990; 22(2):54–61. [PubMed: 2347409]

Grogger J, Bronars S. The socioeconomic consequences of teenage childbearing: Findings from a natural experiment. Family Planning Perspectives. 1993; 25(4):156–161. 174. [PubMed: 8405341]

Haviland AM, Nagin DS. Causal inference with group based trajectory models. Psychometrika. 2005; 70(3):557–578.

Hawkins JD, Catalano RF, Miller JY. Risk and protective factors for alcohol and other drug problems in adolescence and early adulthood: Implications for substance abuse prevention. Psychological Bulletin. 1992; 112(1):64–105. [PubMed: 1529040]

Hope TL, Wilder EI, Watt TT. The relationships among adolescent pregnancy, pregnancy resolution, and juvenile delinquency. The Sociological Quarterly. 2003; 44(4):555–576.

Hotz VJ, Mullin CH, Sanders SG. Bounding causal effects using data from a contaminated natural experiment: Analyzing the effects of teenage childbearing. Review of Economic Studies. 1997; 64(4):575–603.

Huizinga, D.; Morse, BJ.; Elliott, DS. The National Youth Survey: An overview and description of recent findings. Boulder, CO: Institute of Behavioral Science, University of Colorado; 1992.

Jaffee S, Caspi A, Moffitt TE, Belsky J, Silva P. Why are children born to teen mothers at risk for adverse outcomes in young adulthood? Results from a 20-year longitudinal study. Development and Psychopathology. 2001; 13(2):377–397. [PubMed: 11393652]

Kandel DB. Parenting styles, drug use, and children's adjustment in families in young adults. Journal of Marriage and the Family. 1990; 52(1):183–196.

Krohn MD, Lizotte AJ, Bushway SD, Schmidt NM, Phillips MD. Shelter during the storm: A search for factors that protect at-risk adolescents from violence. Crime & Delinquency. 2010

Krohn MD, Thornberry TP. Retention of minority populations in panel studies of drug use. Drugs and Society. 1999; 14:185–207.

Leadbeater BJ, Bishop SJ, Raver CC. Quality of mother-toddler interactions, maternal depressive symptoms, and behavior problems in preschoolers of adolescent mothers. Developmental Psychology. 1996; 32(2):280–288.

Lizotte AJ, Chard-Wierschem DJ, Loeber R, Stern SB. A shortened child behavior checklist for delinquency studies. Journal of Quantitative Criminology. 1992; 8(2):233–245.

Laub JH, Nagin DS, Sampson RJ. Trajectories of change in criminal offending: Good marriages and the desistance process. American Sociological Review. 1998; 63:225–238.

Loeber R. The stability of antisocial and delinquent child behavior: A review. Child Development. 1982; 53(6):1431–1446. [PubMed: 6756808]

Luthar SS, Cicchetti D, Becker B. The construct of resilience: A critical evaluation and guidelines for future work. Child Development. 2000; 71(3):543–562. [PubMed: 10953923]

Luthar SS, Cushing G, Merikangas KR, Rounsaville BJ. Multiple jeopardy: Risk and protective factors among addicted mothers' offspring. Development and Psychopathology. 1998; 10(1):117–136. [PubMed: 9524811]

McKenry PC, Kotch JB, Browne DH. Correlates of dysfunctional parenting attitudes among low-income adolescent mothers. Journal of Adolescent Research. 1991; 6(2):212–234.

Mensch BS, Kandel DB. Dropping out of high school and drug involvement. Sociology of Education. 1988; 61(2):95–113.

Miller-Johnson S, Winn DM, Coie J, Maumary-Gremaud A, Hyman C, Terry R, Lochman J. Motherhood during the teen years: A developmental perspective on risk factors for childbearing. Development and Psychopathology. 1999; 11(1):85–100. [PubMed: 10208357]

Monk-Turner E. Effects of high school delinquency on educational attainment and adult occupational status. Sociological Perspectives. 1989; 32(3):413–418.

Moore KA, Waite LJ. Marital dissolution, early motherhood, and early marriage. Social Forces. 1981; 60(1):20–40.

Nagin DS, Pogarsky G, Farrington DP. Adolescent mothers and the criminal behavior of their children. Law and Society Review. 1997; 31(1):137–162.

Patterson, Gerald R.; Reid, John B.; Dishion, Thomas J. Antisocial boys. Eugene, OR: Castalia Press; 1992.

Piquero, AR. Taking stock of developmental trajectories of criminal activity over the life course. In: Liberman, AM., editor. The long view of crime: A synthesis of longitudinal research. New York, NY: Springer; 2008. p. 23-78.

Piquero AR, Blumstein A, Brame R, Haapenen R, Mulvey EP, Nagin DS. Assessing the impact of exposure time and incapacitation on longitudinal trajectories of criminal offending. Journal of Adolescent Research. 2001; 16(1):54–74.

Pogarsky G, Lizotte AJ, Thornberry TP. The delinquency of children born to young mothers: Results from the Rochester Youth Development Study. Criminology. 2003; 41(4):1249–1286.

Pogarsky G, Thornberry TP, Lizotte AJ. Developmental outcomes for children of young mothers. Journal of Marriage and Family. 2006; 68(2):332–344.

Raudenbush SW. How do we study “what happens next”? The Annals of the American Academy of Political and Social Science. 2005; 602(1):131–144.

Robins LN, Lewis RG. The role of the antisocial family in school completion and delinquency: A three-generation study. Sociological Quarterly. 1966; 7(4):500–514.

Robins LN, West PA, Herjanic BL. Arrests and delinquency in two generations: A study of black urban families and their children. Journal of Child Psychology and Psychiatry. 1975; 16(2):125–140. [PubMed: 1127050]

Sher KJ, Gershuny BS, Peterson L, Raskin G. The role of childhood stressors in the intergenerational transmission of alcohol use disorders. Journal of Studies on Alcohol. 1997; 58(4):414–427. [PubMed: 9203123]

Smith, C.; Lizotte, AJ.; Thornberry, TP.; Krohn, MD. Resilient youth: Identifying factors that prevent high-risk youth from engaging in delinquency and drug use. In: Hagan, J., editor. Delinquency and disrepute in the life course. Greenwich, CT: JAI Press; 1995. p. 217-247.

Thornberry TP. Explaining multiple patterns of offending across the life course and across generations. The Annals of the American Academy of Political and Social Science. 2005; 602(1):156–195.

Thornberry TP, Freeman-Gallant A, Lizotte AJ, Krohn MD, Smith CA. Linked lives: The intergenerational transmission of antisocial behavior. Journal of Abnormal Child Psychology. 2003; 31(2):171–184. [PubMed: 12735399]

Thornberry TP, Freeman-Gallant A, Lovegrove PJ. Intergeneration linkages in antisocial behaviour. Criminal Behaviour and Mental Health. 2009; 19(2):80–93. [PubMed: 19274625]

Thornberry, TP.; Krohn, M. The development of delinquency: An interactional perspective. In: White, Susan O., editor. Handbook of Youth and Justice. New York, NY: Plenum; 2001. p. 289-305.

Thornberry TP, Smith CA, Howard GJ. Risk factors for teenage fatherhood. Journal of Marriage and the Family. 1997; 59(8):505–522.

Tremblay RE, Nagin DS, Seguin JR, Zoccolillo M, Zelazo PD, Boivin M, Perusse D, Japel C. Physical aggression during early childhood: Trajectories and predictors. Pediatrics. 2004; 114(1):43–50.

Van de Rakt M, Nieuwbeerta P, Dirk de Graaf N. Like father, like son: The relationships between conviction trajectories of fathers and their sons and daughters. The British Journal of Criminology. 2008; 48(4):538–556.

Ventura, SJ.; Abma, JC.; Mosher, WD.; Henshaw, SK. Recent trends in teenage pregnancy in the United States, 1990–2002. Hyattsville, MD: National Center for Health Statistics; 2006.

Wolfgang, ME.; Figlio, RM.; Sellin, T. Delinquency in a birth cohort. Chicago, IL: University of Chicago Press; 1972.

Xie H, Cairns BD, Cairns RB. Predicting teen motherhood and teen fatherhood: Individual characteristics and peer affiliations. Social Development. 2001; 10(4):488–511.

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Terence P. Thornberry, Ph.D., is Distinguished University Professor in the Department of Criminology and Criminal Justice at the University of Maryland and the Principal Investigator of the Rochester Youth Development Study, a three-generation panel study begun in 1986 to examine the causes and consequences of delinquency and other forms of antisocial behaviors. In 1995 he was elected a Fellow of the American Society of Criminology and in 2008 he was the recipient of that society's Edwin H. Sutherland Award. He is the co-author of a number of books, including *Gangs and Delinquency in Developmental Perspective* which received the American Society of Criminology's Michael J. Hindelang Award in 2003.

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Nicole M. Schmidt received her doctorate at the School of Criminal Justice at the University at Albany. She currently works as a Data Analyst in the Institute on Urban Health Research at Northeastern University. Her research interests include risky sexual behavior, juvenile delinquency, and deviance.

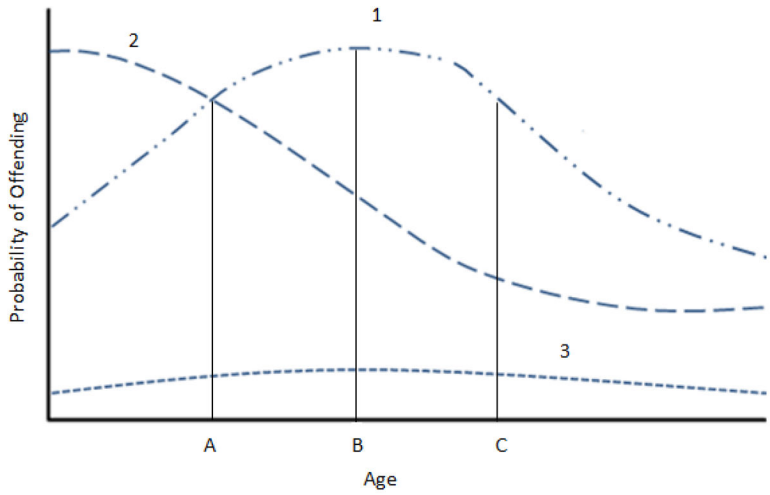

Figure 1.
Three Hypothetical Paths of Offending

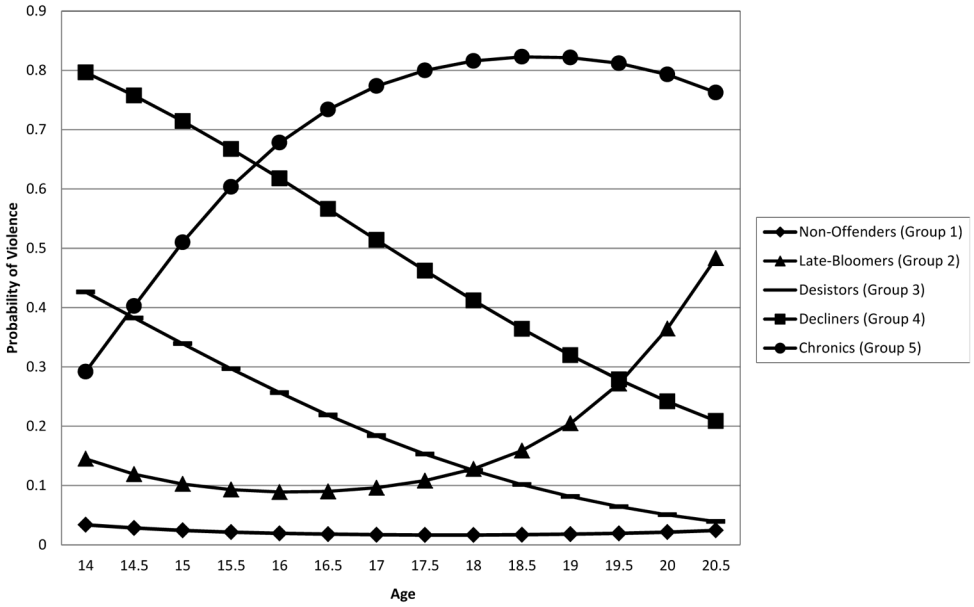

Figure 2.
Violence Prevalence Trajectory Groups, Waves 1 – 10

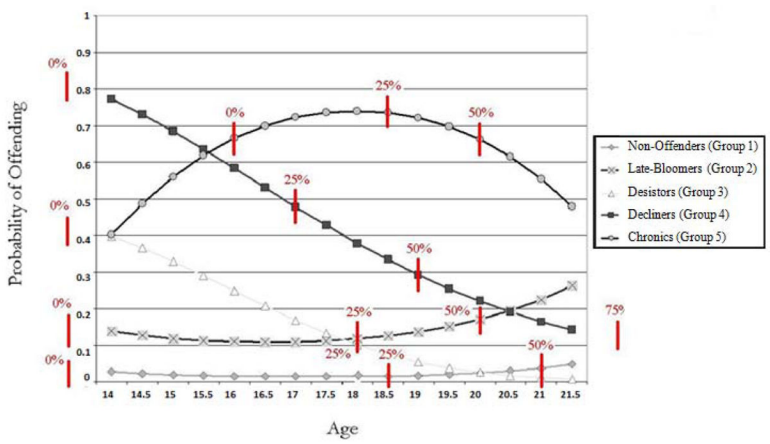

Figure 3.
Interquartile Ranges of Age at First Birth By Trajectory Group.

Table 1

Means and Standard Deviations for G2 and G3 Core Measures

G3 Outcome Measures			
	Age 6		
	Mean	**Standard Deviation**	**Range**
Achenbach Delinquency	0.175	0.143	0 – 0.92
Achenbach Aggression	0.551	0.359	0 – 1.80
Achenbach Externalizing Behavior	0.403	0.260	0 – 1.39
Non-Offender Trajectory (Group 1)	0.822	0.162	0.34 – 0.97
Later-Bloomer Trajectory (Group 2)	0.782	0.198	0.36 – 0.99
Desistor Trajectory (Group 3)	0.750	0.161	0.34 – 0.97
Decliner Trajectory (Group 4)	0.729	0.167	0.42 – 0.99
Chronic Trajectory (Group 5)	0.796	0.163	0.39 – 0.99
	Age 10		
Achenbach Delinquency	0.198	0.171	0 – 1.0
Achenbach Aggression	0.534	0.373	0 – 1.70
Achenbach Externalizing Behavior	0.401	0.280	0 – 1.42
Non-Offender Trajectory (Group 1)	0.822	0.162	0.33 – 0.97
Later-Bloomer Trajectory (Group 2)	0.781	0.192	0.38 – 0.99
Desistor Trajectory (Group 3)	0.754	0.162	0.34 – 0.97
Decliner Trajectory (Group 4)	0.727	0.166	0.42 – 0.99
Chronic Trajectory (Group 5)	0.793	0.166	0.39 – 0.99
G2 Potential Mediating Factors			
	Mean	Standard Deviation	Range
Age at First Birth	21.2	4.7	13 – 39
Depressive Symptoms	0.506	0.501	1.0 – 3.71
Stressful Life Events	0.327	0.470	0 – 0.5
Welfare Receipt	0.441	0.498	0 – 1.0
Enrolled/Completed HS or GED	0.269	0.444	0 – 1.0
Partner Status	0.294	0.456	0 – 1.0
Employed, 19–21	0.473	0.500	0 – 1.0
Summary Measure of Mediators	2.134	1.305	0 – 6.0
	Controls		
	Mean	Standard Deviation	Range
Gender	0.271	0.445	0 – 1
Black	0.680	0.467	0 – 1.0
Hispanic	0.170	0.376	0 – 1.0

Table 2

Predicting Age 6 Antisocial Behaviors Using Parent Trajectory Groups and Age at First Birth

	Achenbach Delinquency		Achenbach Aggression		Achenbach Externalizing Behavior	
Late-Bloomer Trajectory (Group 2)	0.011 0.019	(0.040)	0.046 0.032	(0.102)	0.032 0.031	(0.074)
Desistor Trajectory (Group 3)	0.036 0.081	(0.031)	0.107 0.097	(0.078)	0.079 0.098	(0.057)
Decliner Trajectory (Group 4)	0.094** 0.191	(0.033)	0.102 0.082	(0.084)	0.100 0.110	(0.061)
Chronic Trajectory (Group 5)	0.039 0.065	(0.041)	0.155 0.102	(0.104)	0.109 0.100	(0.075)
G2 Age at First Birth	−0.007 −0.096	(0.005)	−0.017 −0.084	(0.013)	−0.013 −0.091	(0.034)
G3 Male	0.030 0.104	(0.018)	0.012 0.016	(0.047)	0.019 0.036	(0.010)
(Intercept)	0.161	(0.013)	0.547	(0.032)	0.395	(0.024)
R^2	0.057		0.025		0.031	
F value	2.39*		1.02		1.28	
Sample Size	244		244		244	

* $p < 0.05$

** $p < 0.01$

*** $p < 0.001$

Standard errors in parentheses. Unstandardized coefficient above standardized coefficient below.

Table 3

Predicting Age 6 Antisocial Behaviors Using Parent Trajectory Groups, Age at First Birth, and Interactions

	Achenbach Delinquency		Achenbach Aggression		Achenbach Externalizing Behavior	
Late-Bloomer Trajectory (Group 2)	0.013 0.022	(0.040)	0.048 0.033	(0.102)	0.034 0.033	(0.074)
Desistor Trajectory (Group 3)	0.041 0.094	(0.030)	0.111 0.101	(0.078)	0.083 0.104	(0.057)
Decliner Trajectory (Group 4)	0.074* 0.150	(0.034)	0.083 0.068	(0.087)	0.080 0.089	(0.063)
Chronic Trajectory (Group 5)	0.045 0.075	(0.040)	0.157 0.104	(0.105)	0.113 0.103	(0.076)
G2 Age at First Birth	−0.010 −0.129	(0.005)	−0.021 −0.098	(0.013)	−0.016 −0.110	(0.010)
T4* G2 Age at First Birth	−0.054* −0.163	(0.021)	−0.051 −0.058	(0.055)	−0.052 −0.084	(0.040)
T5* G2 Age at First Birth	−0.011 −0.025	(0.029)	−0.034 −0.028	(0.073)	−0.025 −0.029	(0.053)
G3 Male	0.025 0.088	(0.018)	0.006 0.008	(0.047)	0.014 0.026	(0.034)
(Intercept)	0.160	(0.013)	0.546	(0.033)	0.394	(0.024)
R^2	0.083		0.030		0.040	
F value	2.65**		0.89		1.21	
Sample Size	245		245		245	

* $p < 0.05$

** $p < 0.01$

*** $p < 0.001$

Standard errors in parentheses. Unstandardized coefficient above standardized coefficient below.

Table 4

Predicting Age 10 Antisocial Behaviors Using Parent Trajectory Groups and Age at First Birth

	Achenbach Delinquency		Achenbach Aggression		Achenbach Externalizing Behavior	
Late-Bloomer Trajectory (Group 2)	0.048 0.060	(0.054)	0.103 0.059	(0.118)	0.081 0.062	(0.088)
Desistor Trajectory (Group 3)	0.045 0.089	(0.037)	0.143 0.130	(0.080)	0.104 0.126	(0.060)
Decliner Trajectory (Group 4)	0.073* 0.137	(0.037)	0.173* 0.147	(0.079)	0.133* 0.151	(0.060)
Chronic Trajectory (Group 5)	0.113* 0.156	(0.050)	0.257* 0.163	(0.108)	0.200* 0.169	(0.081)
G2 Age at First Birth	−0.014* −0.137	(0.007)	−0.033* −0.143	(0.047)	−0.026* −0.149	(0.011)
G3 Male	0.035 0.102	(0.022)	0.072 0.095	(0.014)	0.057 0.101	(0.036)
(Intercept)	0.134	(0.024)	0.390	(0.052)	0.289	(0.039)
R^2	0.058		0.063		0.067	
F value	2.43*		2.67*		2.86**	
Sample Size	245		245		245	

* $p < 0.05$

** $p < 0.01$

*** $p < 0.001$

Standard errors in parentheses. Unstandardized coefficient above standardized coefficient below.

Table 5

Predicting Age 10 Antisocial Behaviors Using Parent Trajectory Groups, Age at First Birth, and Interactions

	Achenbach Delinquency		Achenbach Aggression		Achenbach Externalizing Behavior	
Late-Bloomer Trajectory (Group 2)	0.047 0.058	(0.054)	0.099 0.057	(0.118)	0.078 0.060	(0.088)
Desistor Trajectory (Group 3)	0.045 0.089	(0.037)	0.145 0.132	(0.080)	0.105 0.128	(0.060)
Decliner Trajectory (Group 4)	0.131* 0.236	(0.067)	0.191 0.165	(0.145)	0.167 0.189	(0.109)
Chronic Trajectory (Group 5)	−0.019 −0.020	(0.086)	−0.050 −0.026	(0.187)	−0.038 −0.026	(0.140)
G2 Age at First Birth	−0.016* −0.154	(0.007)	−0.034* −0.148	(0.015)	−0.027* −0.157	(0.011)
T4* G2 Age at First Birth	0.022 0.128	(0.020)	0.011 0.032	(0.043)	0.015 0.056	(0.032)
T5* G2 Age at First Birth	−0.060* −0.215	(0.032)	−0.138* −0.228	(0.069)	−0.107* −0.235	(0.051)
G3 Male	0.039 0.112	(0.022)	0.078 0.103	(0.047)	0.062 0.109	(0.035)
(Intercept)	0.130***	(0.024)	0.387***	(0.053)	0.285***	(0.040)
R^2	0.075		0.077		0.084	
F value	2.40**		2.49		2.69	
Sample Size	245		245		245	

* $p < 0.05$

** $p < 0.01$

*** $p < 0.001$

Standard errors in parentheses. Unstandardized coefficient above standardized coefficient below.

Table 6

Predicting Age 10 Antisocial Behaviors Using Parent Trajectory Groups, Age at First Birth, Interactions, and a Summary Measure of Mediators

	Achenbach Delinquency		Achenbach Aggression		Achenbach Externalizing Behavior	
Late-Bloomer Trajectory (Group 2)	0.046 0.058	(0.054)	0.098 0.057	(0.118)	0.078 0.060	(0.088)
Desistor Trajectory (Group 3)	0.044 0.088	(0.037)	0.143 0.130	(0.080)	0.104 0.126	(0.060)
Decliner Trajectory (Group 4)	0.126 0.236	(0.067)	0.191 0.165	(0.145)	0.164 0.188	(0.109)
Chronic Trajectory (Group 5)	−0.014 −0.019	(0.086)	−0.039 −0.025	(0.188)	−0.029 −0.024	(0.141)
G2 Age at First Birth	−0.015* −0.148	(0.007)	−0.032* −0.139	(0.015)	−0.025* −0.148	(0.011)
T4* G2 Age at First Birth	0.021 0.131	(0.020)	0.013 0.037	(0.043)	0.016 0.061	(0.032)
T5* G2 Age at First Birth	−0.057 −0.211	(0.032)	−0.130 −0.221	(0.069)	−0.101* −0.229	(0.052)
Summary of Mediators	0.004 0.030	(0.008)	0.013 0.052	(0.016)	0.009 0.049	(0.012)
G3 Male	0.038 0.112	(0.022)	0.077 0.103	(0.048)	0.061 0.110	(0.036)
(Intercept)	0.123***	(0.028)	0.363***	(0.061)	0.269***	(0.046)
R^2	0.076		0.080		0.086	
F value	2.15*		2.28*		2.45**	
Sample Size	245		245		245	

* $p < 0.05$

** $p < 0.01$

*** $p < 0.001$

Standard errors in parentheses. Unstandardized coefficients above standardized coefficient below.